



EXHIBIT A

Pressure clamping of bi-r tational pump.

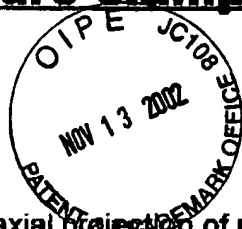


Figure 1 showing axial projection of pressurized area (shaded area).

This area is exposed to the pressure generated by the pump and thus resulting in an axial separating force within the pump.

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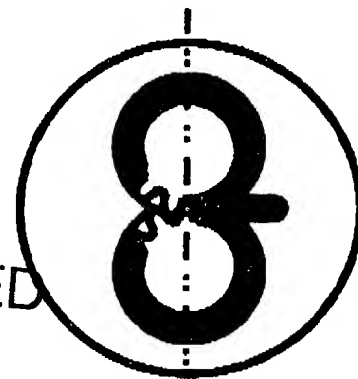


FIGURE 1,
PROJECTION A - A

Figure 2 shows the axial projected pressurized area from either end of pump (shaded area, B - B).

This area is exposed to the pressure generated by the pump and resulting in a clamping force opposing the force in Figure 1.

As the area in Figure 1 is smaller than the area in Figure 2 the resulting force will be a clamping force holding the pump together axially. The net force will force the pump against the opposite end of the cavity.

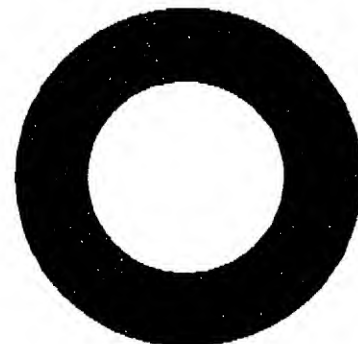


FIGURE 2,
PROJECTION B - B

The above shows the forces in clock wise rotation of the pump. With counter clock wise rotation the area in Figure 1 is mirrored along shown axis in Figure 1 and the axial force changing direction from B - B to C - C. The result is a pump which is clamped together by its own generated pressure independent of the direction of the rotation, fluid direction.

